No. 873,680. PATENTED DEC. 10, 1907.

J. V. PEARSE.

SPRAYING APPARATUS.

APPLICATION FILED MAR. 13, 1907.

2 SHEETS—SHEET 1.

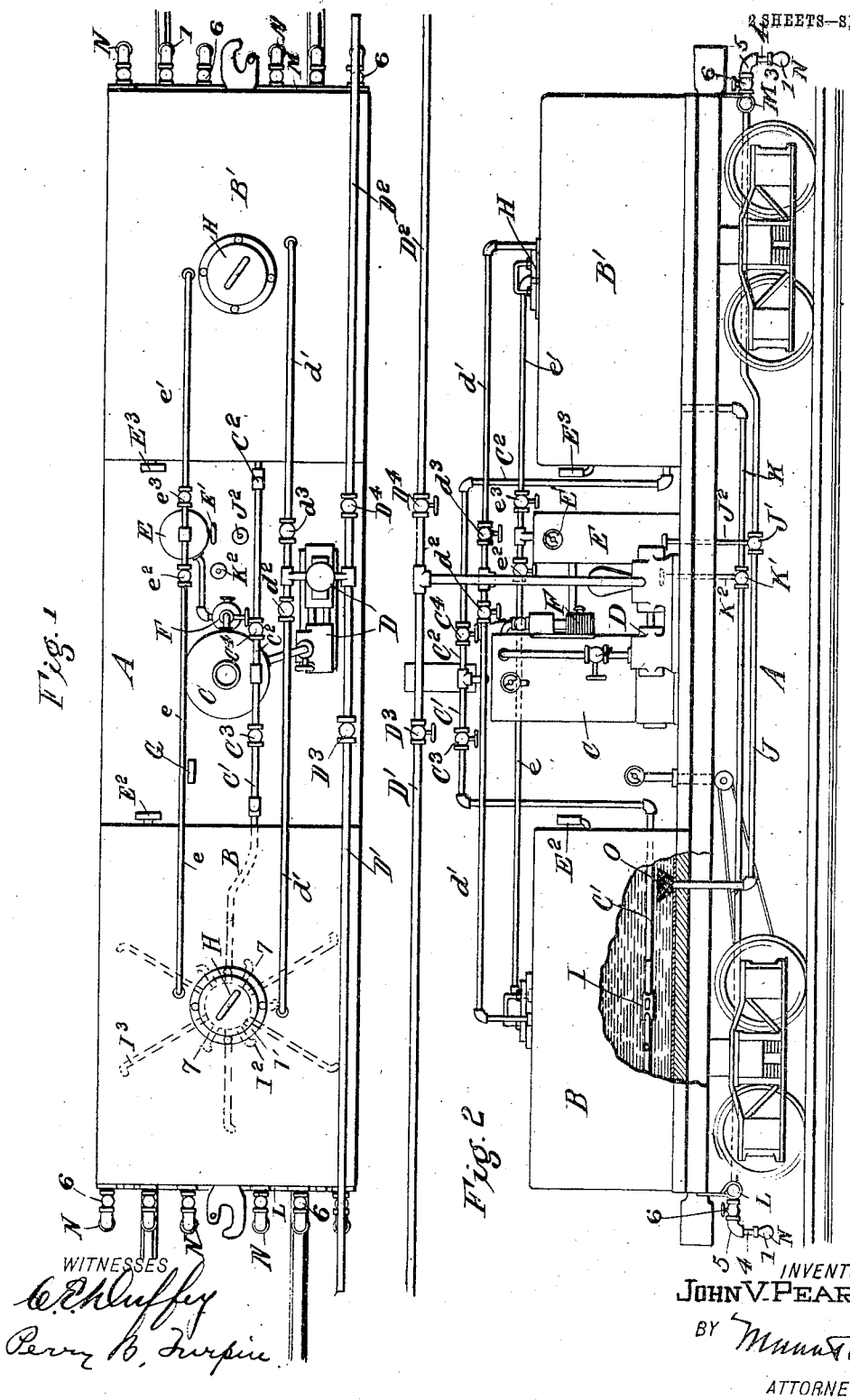

Fig. 1

Fig. 2

WITNESSES.

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2 SHEETS—SHEET 2.

Fig. 3

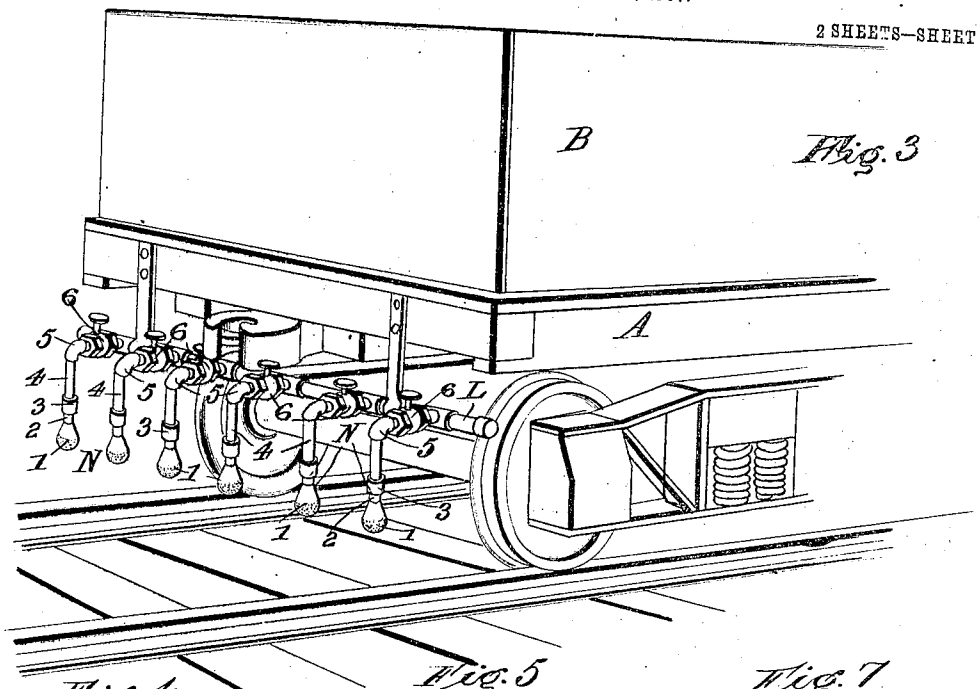


Fig. 4

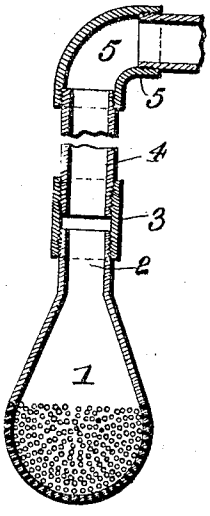


Fig. 5

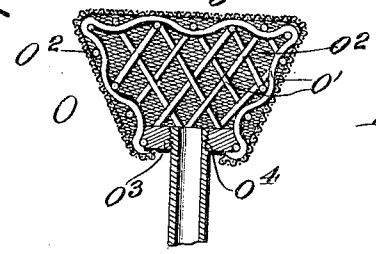
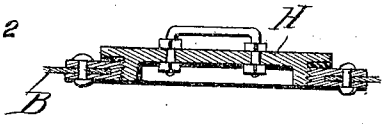


Fig. 7



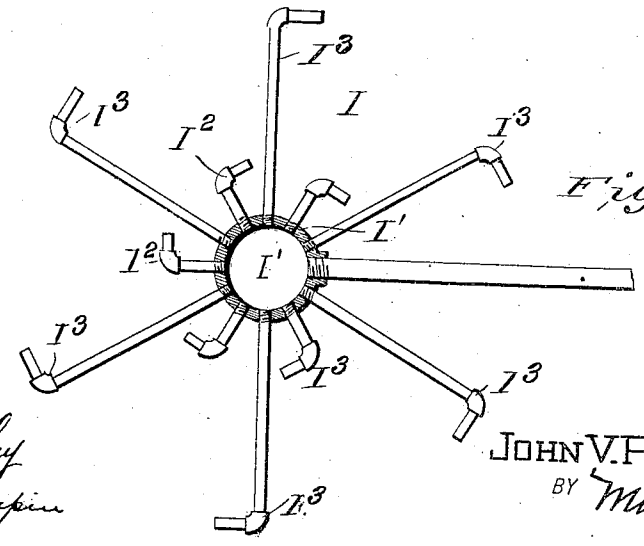


Fig. 6.

WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN V. PEARSE, OF OWENSBORO, KENTUCKY, ASSIGNOR TO RAILWAY CHEMICAL SPRAYER COMPANY, OF OWENSBORO, KENTUCKY, A CORPORATION OF KENTUCKY.

SPRAYING APPARATUS.

No. 873,680. Specification of Letters Patent. Patented Dec. 10, 1907.

Application filed March 13, 1907. Serial No. 362,138.

To all whom it may concern:

Be it known that I, JOHN V. PEARSE, a citizen of the United States, and a resident of Owensboro, in the county of Daviess and State of Kentucky, have made certain new and useful Improvements in Spraying Apparatus, of which the following is a specification.

My invention is an improvement in spraying apparatus and is designed especially for spraying plants upon railroad tracks with a liquid adapted to destroy the plants; and the invention consists in certain novel constructions and combinations of parts as will be hereinafter described and claimed.

In the drawings—Figure 1 is a top plan view, and Fig. 2 is a side elevation partly in section of my improvements. Fig. 3 is a perspective view of the end of a car provided with my improvements. Fig. 4 is a detail view of the spraying nozzle. Fig. 5 is a detail view of the strainer. Fig. 6 is a detail view of the stirrer, and Fig. 7 is a detail section on about line 7—7 of Fig. 1.

In carrying out my invention I employ a car which may in general respects be of ordinary construction and has the bed A upon which at its opposite ends I mount the tanks B, B′, usually constructed to occupy each about one-third the length of the car, leaving the remaining third between the tanks B and B′ and upon which I mount a boiler C, a pump D connected with the boiler for operation by the steam therefrom, an air reservoir E, an air compressor F connected with the air reservoir for establishing pressure therein and arranged for operation by the steam from the boiler C and for convenience I also prefer to mount on the intermediate portion of the car a speed indicator G which may be conventional and operated from the wheels in any ordinary manner, the said speed indicator forming no part of my invention but being provided simply to facilitate the regulation of the material discharged to correspond with the speed at which the car is being moved over the tracks.

The tanks B and B′ are air tight and are provided with suitable openings closed by air tight covers H and through which access may be had to the tanks for any desired purpose. For filling the tanks, pipes d and d' lead from the pump to respectively tanks B and B′ and are supplied with suitable valves d^2 and d^3 so either tank may be filled independently of the other, thus enabling me to fill one tank while the other is being operated to spray the track. The pump D has pipes D′ and D^2 leading in opposite directions and controlled by valves D^3 and D^4, said pipes D′ and D^2 being in practice connected with any suitable auxiliary tank car that may be in train with the spraying car so the said auxiliary tank car may be utilized at any time in filling either or both of the tanks B and B′ by the operation of the pump D as will be understood from the drawings. The air tank E is connected by pipes e and e' with the tanks B and B′ so pressure may be established to any desired degree in the said tanks B and B′ in order to secure a uniform discharge from the tanks without regard to the quantity of liquid that may be therein and the pipes e and e' are provided with valves e^2 and e^3 so either of the tanks B or B′ may be cut out when it is desired to establish pressure in one tank only. I provide the tanks E with a pressure gage E′ and pressure gages E^2 and E^3 are preferably provided respectively on the tanks B and B′ to indicate the pressure therein. This idea of establishing pressure in the tanks is an important feature of my invention and while I prefer to establish it by the means described and through the compression of air it will be understood that steam pressure may be established in these tanks from the boiler C by the means presently described and such pressure be utilized in securing the uniform discharge of the liquid from the tanks without departing from some of the broad principles of my invention.

Steam is supplied from the boiler C to the opposite tanks primarily for the purpose of heating the liquid in the tanks and thus cooking the contents thereof, but as before suggested the steam may be utilized in establishing the pressure in the tanks although it is preferred to employ the air as thereby the pressure may be established independently of the cooking of the liquid contents of the tanks. In supplying the steam from the boiler C to the tanks B and B′ I employ steam pipes C′ and C^2 leading from the dome of the boiler C to the tanks B and B′ and having valves C^3 and C^4 controlling said pipes independently so steam may be supplied to one or the other of the tanks as may

be desirable in the use of the invention. As shown the steam pipes open into their respective tanks near the bottoms thereof and communicate with stirring nozzles I preferably arranged centrally within the tanks near the bottoms thereof as best shown in Fig. 2 of the drawings. These stirring nozzles I are shown in detail in Fig. 6 and comprise a body portion I′ and pipes I^2 and I^3 extending outwardly therefrom and made of different lengths and deflected laterally at their outer ends so that the discharge of steam from the pipes I^2 and I^3 will operate to stir the contents of the tanks and thus aid in securing a proper mixture of the ingredients of the destroying liquid and preventing any clogging of the outlet in the use of the invention as will be understood from the foregoing description and accompanying drawing.

By the described construction it will be noticed I provide for filling the opposite end tanks with water, for establishing pressure therein, for heating the tanks for cooking the liquid therein and also provide for cutting out either tank so that one tank may be operating to discharge the liquid while the opposite tank is being filled and vice versa.

For discharging the liquid from the tanks I employ the discharge pipe J leading from the tank B, and K leading from the tank B′ and these discharge pipes extend from their respective tanks downwardly below the bed of the car and thence longitudinally to the opposite end of the car at which point they communicate with the nozzle pipes L and M extending transversely across the ends of the car below the coupling and supplied with nozzles N which may be constructed alike and which will be hereinafter described.

The liquid passing to the discharge pipes is strained by strainers O within the tanks and these strainers fit over the ends of the pipes and are preferably made with an inner or body portion of heavy wire O′ forming a frame and a covering of brass or other metal gauze O^2, supported by the said frame and operating effectually to strain the liquid so nothing will pass to clog the nozzles connected with the nozzle pipes. The wire frame O′ is fastened to a collar O^3 having a central opening O^4 threaded on the inner end of the discharge pipe as best shown in Fig. 5 of the drawings.

The purpose of extending the discharge pipes J and K from their respective tanks to the opposite ends of the car is to enable the control of the valves J′ and K′ of said pipes from the intermediate portion of the car, which is effected by having the said pipes pass each other and arranging the valves J′ and K′ in proximity so their stems J^2 and K^2 may extend up through the bed of the car with their handholds in convenient reach of the operator on the intermediate portion of the car. I thus arrange all of the controlling parts between the tanks where they may be readily manipulated in the use of the invention.

The nozzles, of which any suitable number may be employed, are connected with the transverse nozzle pipes and project downwardly with the perforated heads 1 having any suitable number of spraying openings and provided at their upper ends with necks 2 which screw into the lower ends of the couplings 3 and pipe sections 4 screw at their lower ends into the upper ends of the couplings 3 and such pipe sections 4 screw at their upper ends into elbows 5 connected with the nozzle pipes by the valve casings 6 whose valves may be operated to independently control the several nozzles so any one or more of the nozzles may be cut out without cutting out the others as may be desired in the operation of the invention. By the described construction it will be noticed that I am able to bring the nozzle heads close to the track and by using interchangeable pipe sections 4 I may adjust the heads up or down to any desired distance from the track in order to secure the discharge of the liquid on to the plants from any suitable height.

In the operation of my invention it will be noticed the car is moved over the section of track from which the plants are to be removed and the liquid which may be any suitable liquid destructive to plant life may be placed or mixed in the tanks and its discharge from the tanks may be effected under any suitable pressure through the aid of the pressure devices before described and such pressure may be independent of the quantity of liquid in the tank or tanks so that any desired quantity of liquid may be discharged per mile of track by regulating the pressure in correspondence to the speed of the car for which purpose speed indicators and pressure gages are supplied in order that the operator may regulate the pressure and consequently the discharge of liquid to agree with the speed of the car.

I claim—

1. The combination of a car, tanks thereon at its opposite ends and spaced apart, spraying devices at the opposite ends of the car, connections between the spraying devices at the ends of the car and the tanks at the opposite ends of the car, whereby the tank at one end of the car will supply liquid to the spraying devices at the opposite end thereof, valves in said connections midway their ends and adapted to be controlled from the space between the opposite tanks, a boiler on the car between the opposite tanks, steam pipes leading from said boiler to the opposite tanks, stirring nozzles within the opposite tanks and in communication with said steam pipes, a water pump operated from the boiler, pipes leading from said pump to the tanks, a supply pipe leading to the pump, an

air reservoir on the car between the opposite tanks and connected therewith whereby to establish pressure in the said tanks and an air compressor operated from the boiler and connected with the reservoir for establishing pressure therein, all substantially as and for the purpose set forth.

2. An apparatus substantially as described comprising a car, tanks on the opposite ends thereof and spaced apart, means on the car between the tanks and connected with the latter for establishing pressure in the tanks, spraying nozzles at the opposite ends of the car and connections between said nozzles and the tanks, substantially as set forth.

3. An apparatus substantially as described comprising a car, tanks on the car at the ends thereof and spaced apart, means on the car between the tanks for establishing pressure in the latter, discharge nozzles at the opposite ends of the car, a connection between the discharge nozzle at one end of the car and the tank at the opposite end of the car and a connection between the other discharge nozzle and the tank at the opposite end of the car and valves in said connections between their ends, substantially as set forth.

4. The combination of a car, a tank thereon, air compressing devices, connections between the same and the tank for establishing pressure therein and a heater within the tank for cooking the contents thereof substantially as set forth.

5. The combination with a tank, and discharge devices connected therewith, of means for establishing pressure in the tank whereby the discharge therefrom may be regulated independently of the liquid contents of the tank, substantially as set forth.

6. The combination of a tank, discharge devices connected therewith, a heating pipe extending into the tank and a nozzle within the tank and in communication with the heating pipe and having outwardly projecting pipes whose ends are deflected whereby to operate as stirrers within the tank, substantially as set forth.

7. The combination of a tank, discharge devices connected with the tank, a boiler, a steam pipe leading from the boiler into a tank, an air reservoir and connections between the same and the tank, and an air compressor operated from the boiler and connected with the reservoir for establishing pressure therein, substantially as set forth.

8. In an apparatus substantially as described, the combination of a nozzle pipe, a series of nozzles connected therewith and comprising each a perforated head having a neck, a coupling receiving said neck and a pipe section intermediate said coupling and the nozzle pipe and independent valves controlling the passage of liquid from the nozzle pipe to their respective heads, substantially as set forth.

9. The combination of a car, independent tanks thereon, an air compressor, intermediate devices between the air compressor and the independent tanks and comprising pipes leading to their respective tanks and valves controlling said pipes independently, heating pipes leading into the independent tanks and means controlling said pipes independently, substantially as and for the purposes set forth.

10. The combination in an apparatus substantially as described, of a pair of tanks, independent discharge devices for the said tanks and pipes leading from their respective tanks to their respective discharge devices and extending between their ends in close proximity and valves in said pipes between their ends and in close proximity whereby they may be conveniently operated, substantially as set forth.

11. The combination of a car and independent tanks, means for supplying air pressure to the independent tanks, means for supplying steam to the independent tanks and gages for indicating the air pressure and the steam pressure in the tanks substantially as set forth.

12. The combination of a car, tanks thereon at its opposite ends and spaced apart, discharge devices at the opposite ends of the car and pipes leading downwardly from the tanks below the car bed and extending thence below the car bed in the direction of length of the car to the end of the car opposite their respective tanks and communicating with the discharge devices at such ends of the car, substantially as set forth.

JOHN V. PEARSE.

Witnesses:
SOLON C. KEMON,
PERRY B. TURPIN.